

GC Cloning & Amplification Kits

Better than TOPO cloning in performance & price

GC Cloning (patents pending) is the first major advance in PCR cloning since the introduction of TOPO® and TA cloning® systems. The GC Cloning technology is based on the observation that non-proofreading DNA polymerases (e.g., *Taq*, *Tfl*, and *Tth*) add a single 3'-G to DNA molecules, either during PCR or as a separate G-tailing reaction to any blunt DNA (Figure 1). The pSMART® GC, pGC™ Blue and pJAZZ®-OK GC (Figure 2) vectors contain a single 3'-C overhang, which is compatible with the single 3'-G overhang on the inserts instead of the 3'-A overhang used in TOPO/TA cloning

Better Performance

Stable inserts.

- pSMARTGC, pGC Blue, and pJAZZ-OK GC vectors incorporate Lucigen's exclusive CloneSmart® transcription terminators for much greater insert stability in cloning otherwise deleterious sequences (Figure 3).

Vector options.

- Available in high or low copy number, pSMARTGC vectors are transcription-free, offering the highest insert stability.
- Blue/white screening with pGC Blue vector (high copy only) offers great insert stability due to CloneSmart transcription terminators within the vector backbone.
- Clone inserts up to 25kb in pJAZZ-OK GC.
- Kanamycin-resistant GC Cloning vectors avoid the problem of non-transformed "satellite feeder" colonies associated with ampicillin-resistant TOPO/TA vectors.

More recombinants from less DNA.

- The cloning efficiency is much higher with GC Cloning than with TOPO TA cloning. As little as 10 ng of target DNA is cloned efficiently.

Better than TOPO cloning in performance!

- In side-by-side comparisons using the same inserts and following each manufacturer's directions, GC Cloning consistently gives more colonies with the correct insert. (PROOF?)

Flexible expression of cloned PCR products.

- The pGC Blue vector contains opposing SP6 and T7 promoters.

Convenient

Amplification Kits are complete.

- GC Cloning Kits include all enzymes (including *Taq*) and buffers for PCR, ligation, and transformation, unlike TOPO or TA cloning kits.

One kit does it all!

- Easily clone PCR products from any PCR enzyme...proofreading or non-proofreading DNA polymerases.

Convenient, ready-to-use vectors.

- GC Cloning vectors are supplied pre-digested, with single 3'-C tails and dephosphorylated 5' ends (Figure 2).

No screening needed.

- GC Cloning vectors are qualified to produce > 99% recombinant clones.
- TOPO or TA cloning result in a large percentage of empty vector or clones with deletions that require extra time and labor to screen.
- **Simple protocol.**

Fast

Fast ligation.

- GC ligation reaction is minutes, comparable to TOPO, versus hours required for TA cloning.

Best Value

Better than TOPO cloning in price!

- See comparison table, (over).

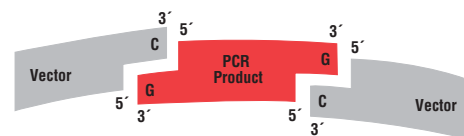
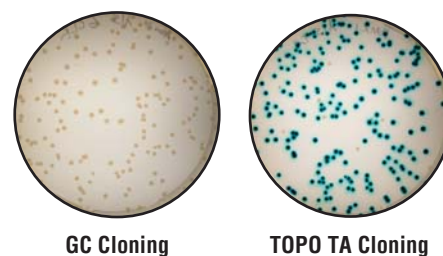


Figure 1. GC Cloning Concept. PCR performed using EconoTaq® or other non-proofreading DNA polymerase adds a single G overhang to the PCR products. Alternately, incubation of blunt-ended DNA with EconoTaq DNA Polymerase adds the 3'-G overhang. Ligation to the complementary C-overhang pSMARTGC or pGC Blue vector is fast and highly efficient.

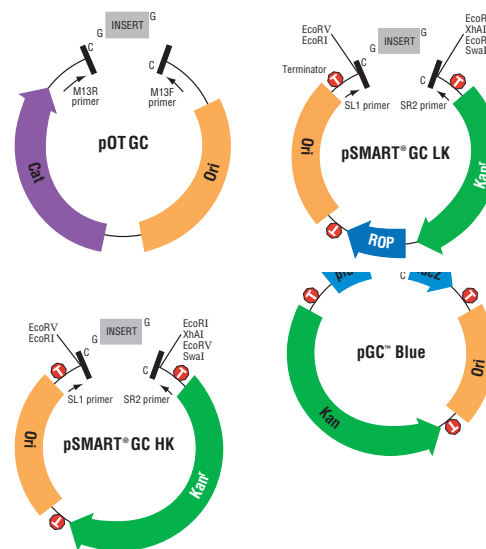


Figure 2. Schematic diagrams of the GC Cloning vectors. Ori, origin of replication; Kan, Kanamycin resistance gene; *plac*, *lac* promoter; *lacZ*, *lacZ* ORF; ROP, Repressor of priming. Approximate positions of T7 and SP6 promoters, and transcription terminators (T) are indicated.

Lucigen	Competent Cells	Efficiency (cfu/ug)	Size	Cat. No.	Invitrogen	Competent Cells	Efficiency (cfu/ug)	Size	Cat No	
BigEasy® Long PCR Cloning Kit (pJAZZ®-OK Blunt)	BigEasy-TSA Electrocompetent Cells	≥ 4 X 10 ¹⁰	5	43054-1	No Equivalent					
			10	43054-2						
			20	43054-3						
BigEasy Long PCR Cloning Kit (pJAZZ®-OK GC)	BigEasy-TSA Electrocompetent Cells	≥ 4 X 10 ¹⁰	5	43066-1	No Equivalent					
			10	43066-2						
			20	43066-3						
GC Cloning & Amplification Kit with pSMART GC LK	10G ELITE Electrocompetent Cells	2 X 10 ¹⁰	10	40736-1	No equivalent to Lucigen					
			20	40736-2						
			4 X 10 ¹⁰	40737-1						
10G SUPREME Electrocompetent Cells	4 X 10 ¹⁰	10	20	40737-2						
			1 X 10 ⁸	40738-1						
10G Chem Comp	1 X 10 ⁸	10	20	40738-2						
GC Cloning & Amplification Kit with pSMART GC HK	10G ELITE Electrocompetent Cells	2 X 10 ¹⁰	10	40731-1	No equivalent to Lucigen					
			20	40731-2						
			4 X 10 ¹⁰	40732-1						
10G SUPREME Electrocompetent Cells	4 X 10 ¹⁰	10	20	40732-2						
			1 X 10 ⁸	40733-0						
10G Chem Comp	1 X 10 ⁸	5	10	40733-1						
			10	40733-2						
			20	40733-2						
GC Cloning & Amplification Kit with pGC Blue	10G EC SUPREME	4 X 10 ¹⁰	10	40741-1	No equivalent to Lucigen					
			20	40741-2						
	10G EC ELITE	2 X 10 ¹⁰	10	20	40742-1	TOPO TA Cloning Kit with pCR2.1	TOP10 EC	1 X 10 ⁹	40	K4560-40
				5	40743-0		TOP10 Chem	1 X 10 ⁹	40	K4500-40
10G Chem Comp	1 X 10 ⁸	10	20	40743-1	Zero Blunt Cloning Kit with pCR Blunt	TOP10 Chem	1 X 10 ⁹	20	K2700-20	
			20	40743-2				40	K2700-40	

ORDER INFORMATION

GC Cloning & Amplification Kits contain: 4X GC Vector Premix (includes buffer, ATP, and either pSMART® GC HK; pSMARTGC LK; or pGC™ Blue); CloneSmart® DNA Ligase; T4 Polynucleotide Kinase; 10X Primer Kinase Buffer (containing ATP); EconoTaq® DNA Polymerase; EconoTaq 10X Reaction Buffer (with Mg⁺⁺); Control *lacZ* template plus PCR primers; CloneSmart Sequencing Primers; a choice of *E. coli* 10G SUPREME (≥4 x 10¹⁰ cfu/μg) or ELITE (≥2 x 10¹⁰ cfu/μg) Electrocompetent Cells, or 10G Chemically Competent Cells (≥1 x 10⁸ cfu/μg), in SOLO packaging (one transformation per tube); Recovery Medium; and Control pUC DNA.

The ChimeraFree Kits contain in addition: PyroPhage® Tail- ing Enzyme & Buffer, plus DNA Terminator® End Repair Enzyme & Buffer.

This product or portions thereof is manufactured and sold under license from GE Healthcare under U.S. Patent 5,614,365 and other pending and foreign patent applications.

Product	Cells Provided w/Kit	Size	Cat. No.
BigEasy Long Cloning Kit (pJAZZ®-OK Blunt)	with BigEasy-TSA Electrocompetent Cells	5 rxns	43054-1
		10 rxns	43054-2
		20 rxns	43054-3
BigEasy Long PCR Cloning Kit (pJAZZ®-OK GC)	with BigEasy-TSA Electrocompetent Cells	5 rxns	43066-1
		10 rxns	43066-2
		20 rxns	43066-3
GC Cloning & Amplification Kit (pSMARTGC LK)	with 10G ELITE Electrocompetent Cells (SOLOs)	10 rxns	40736-1
		20 rxns	40736-2
		with 10G SUPREME Electrocompetent Cells (SOLOs)	10 rxns
20 rxns	40737-2		
with 10G Chemically Competent Cells (SOLOs)	10 rxns	40738-1	
	20 rxns	40738-2	
	GC Cloning & Amplification Kit (pSMARTGC HK)	with 10G ELITE Electrocompetent Cells (SOLOs)	10 rxns
20 rxns			40731-2
with 10G SUPREME Electrocompetent Cells (SOLOs)			10 rxns
20 rxns	40732-2		
with 10G Chemically Competent Cells (SOLOs)	5 rxns	40733-0	
	10 rxns	40733-1	
	20 rxns	40733-2	
GC Cloning & Amplification Kit (pGC Blue)	with 10G ELITE Electrocompetent Cells (SOLOs)	10 rxns	40742-1
		20 rxns	40742-2
		with 10G SUPREME Electrocompetent Cells (SOLOs)	10 rxns
20 rxns	40741-2		
with 10G Chemically Competent Cells (SOLOs)	5 rxns	40743-0	
	10 rxns	40743-1	
	20 rxns	40743-2	

